Растителна защита
електронно списание за растителна защита
семена, торове и земеделие
ISSN 2815-522X

Deficit of vegetables and fruits in Europe – a crisis with long-term consequences

Author(s): Растителна защита
Date: 19.04.2023 *Issue:* 4/2023

Agriculture in Europe is becoming increasingly dependent on the vagaries of the climate, which affects the food supply system. One of the illustrative examples from the beginning of 2023 is the complete chaos that occurred in the food chains in the United Kingdom, where fruit and vegetables turned into scarce commodities. The vegetable garden of Europe, which is a major supplier of vegetables to the continent, is a victim not only of unpredictable climate change, but also of an aggressive policy aimed at year-round overproduction and consumption. The arable land in Spain that is irrigated artificially has increased over the past decades, even though agricultural precipitation has been decreasing. We have been witnessing extremely high temperatures

ISSN 2815-522X

on the Iberian Peninsula since the beginning of the year. The prolonged drought in the southern part of the country has also affected areas that traditionally grow fruit trees, olive trees and vineyards.

“What we have been witnessing in recent weeks will very soon turn from a shocking fact into reality, and not only for the specific market in England,” says Elisa Oteros, Professor of Ecology at the University of Cordoba, southern Spain. We often assume that extreme weather changes are temporary in nature, but in fact these are lasting climate changes.

„Rainfall and temperatures are becoming increasingly unpredictable,“ Oteros explains. Instead of clearly defined seasons, farmers are beginning to get used to climatic fluctuations, and not only in Spain. In general, the climate formula in recent years can be described as follows – excessively hot summers and warm winter weeks, followed by frost, drought and finally torrential rains and hailstorms. Meteorologists forecast a subtropical climate for southern Spain, and other parts of the country are likely to turn into deserts.

Agricultural production in Central and Northern Europe is also undergoing changes as a result of climate change. High temperatures and lack of precipitation during the record summer of 2022 caused a decline in yields. In Germany, twelve percent less vegetables such as cucumbers, peppers and tomatoes were harvested compared to 2021.

Long-term consequences

All this has an impact on agricultural production. But it is also interesting that „the arable land that is irrigated artificially has increased over the past decades, even though it rains less and less,“ says Oteros. Last year, the amount of agricultural precipitation was about 26% below the average for the years 1981 to 2010; in February 2022, rainfall was 80% lower, according to the Spanish meteorological service. The situation also looks worrying in the remaining months – in May, precipitation was 65% below normal, and in October 35% below normal.

The areas for vegetable cultivation in greenhouses and the citrus plantations in eastern and southern Spain are severely affected by the lack of rainfall. But not only they: often even plants that thrive in dry regions, such as olive or almond trees, have been replaced by varieties that provide higher yields but in return must be irrigated much more. The regions of Murcia and Almería, called the „Garden of Europe,“ grow peppers, tomatoes and other vegetables for the European and international market all year round. These giant greenhouses in southern Spain are facing the problem of enormous consumption of water and electricity.

Drought and water scarcity

ISSN 2815-522X

Drought no longer affects predominantly the territory of southern Spain. At the beginning of the year, a state of emergency with water restrictions was declared in the northeastern part of Catalonia and the use of water for irrigation was limited. Some of the largest orchards in Spain are located there. They suffer from persistent drought and especially from dry and warm periods during the winter months, increasingly often followed by long periods of frost and cold spells in spring.

„Fruit trees bloom too early. Frost, wind, hail and torrential rain damage the plantations and yields decline," says Oteros. This year, depending on the region, an average of between 10 and 20% of the fruit harvest will probably be lost. In addition, the warmer climate encourages the mass proliferation of the Mediterranean fruit fly. Fruit and olive trees are increasingly affected by diseases.

Vineyards are also suffering from climate change. Grapes need warmth and little rain in order to ripen and form sugars, but at the same time they also require cold to maintain the acidity level in the berries. If it is too cold, the grapes do not ripen in time, resulting in more acidic wines. If it is extremely hot, the grapes ripen too early. They form too many sugars, which during fermentation leads to a higher alcohol content. Rapidly ripened grapes also do not develop complex flavour notes. The result is wines without intense and rich nuances.

Reduced harvest

Even if global warming is limited to less than two degrees Celsius, as stipulated in the Paris Agreement, the areas traditionally planted with vineyards will decrease by more than half. In Spain, 65% of the current cultivated area no longer provides sufficiently optimal conditions for the production of quality wines. If the average temperature rises by another four percent, this will most likely lead to a sharp reduction in the production of wines from the renowned Rioja variety.

Rioja is the largest and most renowned wine region in Spain, located in the northern part of the country. It has a Denominación de Origen Calificada (D.O.Ca) which covers 54,000 hectares around three different administrative regions (La Rioja, Navarre and the province of Álava). It is further divided into three zones: Rioja Alta, Rioja Oriental and Rioja Alavesa.

"The agro-industrial model has led to many social changes, including a change in the consumption model. This model, based on abundance, homogeneous and cheap raw materials, encourages the consumption of more food, without taking into account local varieties and the seasonality of products," states a report entitled "Agroecology for Cooling the Planet" by the Spanish environmental organization *Ecologistas en Acción.*

Растителна защита
електронно списание за растителна защита
семена, торове и земеделие
ISSN 2815-522X